

Weekly Web Review in Emergency Medicine

Article Review: February 14, 1997



ADJUNCTIVE DRUG THERAPY OF ACUTE MYOCARDIAL INFARCTION - EVIDENCE FROM CLINICAL TRIALS

Hennekens CH, Albert CM, Godfried SL et al. , *N Engl J Med* , 1996;335(22):1660.

BACKGROUND: Up to 15% of patients with acute myocardial infarction (AMI) will die during their initial hospitalization, and an additional 15% during the following year. Adjunctive drug therapy can reduce mortality by 5 to 30 percent. This article reviews evidence concerning the efficacy of various adjuncts.

Beta-adrenergic-antagonists reduce arrhythmias, myocardial ischemia, hypertension, and infarct size. Although meta-analysis of clinical trials reveals a 23 percent reduction in mortality when beta-blockers are given after AMI, only a minority of patients receives such treatment. The authors recommend that beta-blockers be given to all patients with AMI who do not have specific contraindications (e.g., pulmonary edema, asthma, hypotension, bradycardia, advanced atrioventricular block). **ACE Inhibitors** (ACE-I) improve left ventricular function and alleviate congestive heart failure (CHF) during and after AMI. Evidence from large clinical trials indicates a 6.5 percent decreased mortality in patients treated with ACE-I early after AMI, as well as reduced occurrence of severe congestive heart failure. The authors recommend that all patients with AMI and no clear contraindication (e.g., hypotension, bilateral renal-artery stenosis, renal failure, or history of ACE-I-induced cough or angioedema) be started on oral ACE-I within 24 hours of symptom onset, and treatment continued for at least 5-6 weeks. **Nitrates** decrease both coronary vasospasm and myocardial oxygen demand, limit infarct size, and improve left ventricular function. Although several large studies showed a trend to lower mortality when nitrates were given after AMI, this did not achieve statistical significance. Meta-analysis of 22 large and small studies showed a significant 5.5 percent reduction in mortality when nitrates were used. The authors feel that existing evidence is not sufficient to recommend the routine use of nitrates in AMI. **Calcium-channel blockers** have not been shown to reduce mortality after AMI, and are not recommended as standard treatment. **Magnesium** is a vasodilator, reduces platelet aggregation, and stabilizes cell membranes. However, administration of magnesium after AMI has not been shown to decrease mortality, and is not recommended as standard therapy. Studies are underway to determine whether magnesium may have a role in reducing reperfusion-related injury when started at the same time as thrombolytics.

COMMENT: The authors recommend that, when no contraindications exist, beta-adrenergic antagonists and oral ACE-I be administered routinely during AMI along with aspirin and thrombolytics. Patients receiving these adjuncts should be monitored carefully for hypotension. Nitrates can be given to reduce persistent ischemic chest pain. This excellent review article is must reading for all emergency physicians.

LINKS: The American College of Cardiology/American Heart Association [guidelines](#) for management of patients with AMI still recommend the routine use of intravenous nitrates for the first 24-48 hours of hospitalization, if there are no contraindications (e.g., hypotension, bradycardia, excessive tachycardia). They also recommend routinely starting oral ACE-I therapy within hours of hospitalization if there are no contraindications. These guidelines are must reading.



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